

# ***THE B&O MODELER***

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**WASHINGTON TERMINAL COMPANY RS-1 #43  
HERE'S WHAT I'M WORKING ON: P-5 PACIFIC #5222  
KITBASH AN N-SCALE B&O CLASS N-43 COVERED HOPPER**

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**Editor – Bruce D. Griffin at [bruce\\_griffin@earthlink.net](mailto:bruce_griffin@earthlink.net)**

**Associate Editor – Benjamin Hom at [b.hom@att.net](mailto:b.hom@att.net)**

**Model Products News Editor – Clark Cone at [cconess@carolina.rr.com](mailto:cconess@carolina.rr.com)**

**Modeling Committee Chair – Bill Barringer at [barbllsn@aol.com](mailto:barbllsn@aol.com)**

**Index Editor - Jim Ford at [jimford40@sbcglobal.net](mailto:jimford40@sbcglobal.net)**

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**Cover Photos – Top, Washington Terminal Switcher – Bruce Elliott photo. Middle, P-5 #5222 in progress, Doug Kisala photo. Bottom, N-Scale N-43, Jim Ford photo.**

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## **AN INVITATION TO JOIN THE B&O RAILROAD HISTORICAL SOCIETY**

The Baltimore and Ohio Railroad Historical Society is an independent non-profit educational corporation. The Society's purpose is to foster interest, research, preservation, and the distribution of information concerning the B&O. Its membership is spread throughout the United States and numerous foreign countries, and its scope includes all facets of the B&O's history. Currently the Society has over 1600 registered members.

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ATTN: Membership  
P.O. Box 24068  
Baltimore, MD 21227-0568**

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## WASHINGTON TERMINAL COMPANY RS-1 #43

BY: BRUCE ELLIOTT

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



### The Prototype

What does Washington Terminal have to do with the B&O? We seldom hear of it, and perhaps some of us never have. Well, the Washington Terminal Company, jointly created and owned by the B&O and Pennsylvania Railroad in 1901, was formed as a separate company to switch passenger and head end cars for the various railroads that served Union Station in Washington, DC. These included the Pennsylvania Railroad, Southern, Richmond Fredericksburg & Potomac, Seaboard Coast Line, Atlantic Coast Line, Chesapeake and Ohio and of course, the B&O.

Before the RS-1's arrived, the main power for Washington Terminal was a slight spin-off of the PRR 0-8-0 switcher, having the distinctive Belpaire firebox, and a couple of 0-6-0's. While the terminal RS-1 locomotives spent almost their entire careers running between Ivy City and Union Station, there are a couple of instances where the equipment

wandered off onto the B&O. On occasions when the B&O would be short of power at Eckington, a Washington Terminal RS-1 would be used to add sufficient power to the Brunswick Turnaround, and would return the next day. I was fortunate enough to see this once in Brunswick in the early 70's, but the locomotive was too far away for a decent photo. Washington Terminal RS-1 # 43 was leased to the B&O from the mid-to-late 50's on the Baltimore Division.

I used to see these diesels switching in the terminal area when I would go down to ride the Eckington yard switcher, in the late 60's – early 70's. I knew they were old then, as diesels go. They were attractive because they were different from the EMD road equipment. With the advent of Amtrak in 1971, the paint scheme changed to a light blue with white lettering. This is the way Atlas rendered their HO model a few years ago.





Washington Terminal RS-1 #46, illustrating the pre-1971 paint scheme of these locomotives.

### The Model

This model started some 19 years ago, when Atlas first introduced the RS-1. At the time, I was modeling the B&O in the 70's, and at one time the B&O had an RS-1, that came from the C&O, which is how the model was decorated. When I decided to change my modeling eras, I kept the locomotive with the intention to do the Washington Terminal conversion someday. I chose to do a quick and simple, straight forward job, involving re-painting striping and lettering. One could spend more time altering and adding details, depending on your desire. The locomotive was painted Floquil engine black, and the handrails and footboards were painted

yellow. Walthers had done the decal set for this locomotive probably close to 40 years ago. After looking at the decals, they did not match my photos, being the wrong color and size. I decided to letter the locomotive, character-by-character. The end result is the correct size lettering and color. The decals are mostly Micro-Scale from three different sets and some Walthers Decals. The number boards have characters in them, but can't be seen since there is no power to the locomotive. This was a fun project that, along with old photos, brought back lots of memories.





## Acknowledgements

George Elwood, Steve Myers.



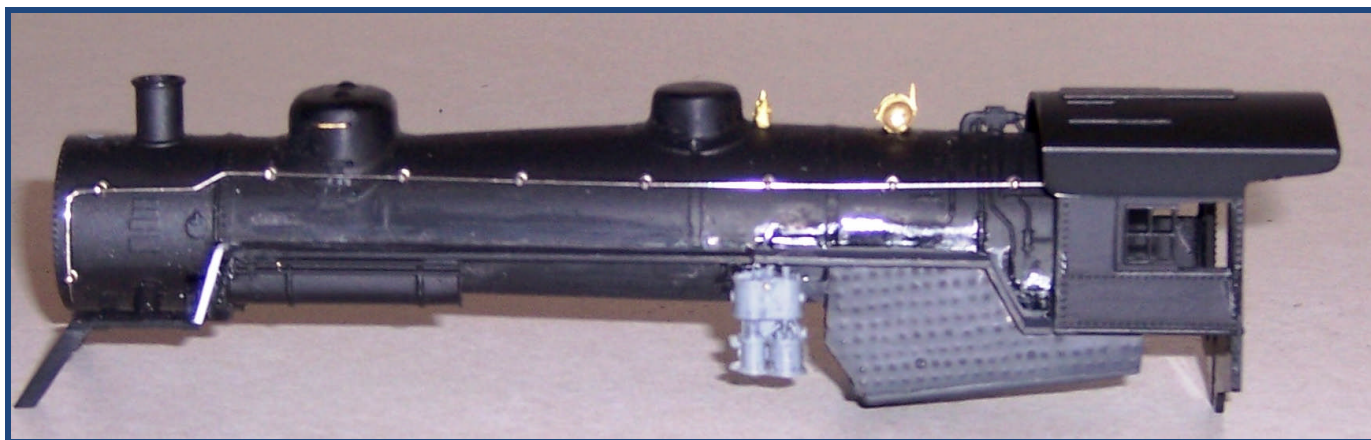
Washington Terminal RS-1 #43, Washington DC, August 1980 (Steve Myers photo).

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## HERE'S WHAT I'M WORKING ON: P-5 PACIFIC #5222

BY: DOUG KISALA

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



### The Prototype

B&O received 30 USRA Light Pacifics in 1919, which became B&O class P-5. The engines were numbered from 5200 to 5229. With modifications, many of the engines ran as late as 1956. As built, the engines had 73" drivers, 200 PSI boiler pressure, were hand-fired, and had Baker valve gear. B&O made many internal and external changes to the engines over the years. One of the more visible changes was the application of Walschaerts valve

gear to at least 20 engines between 1928 and 1934, making them class P-5a. The engines were upgraded with 74" drivers and had boiler pressure raised to 210 PSI, raising tractive force to 42,200 lbs from 40,200 (Edson, page 182). B&O seemed to make minor changes to each of the engines, and by the late 1940s, I'll venture that no two were identical. B&O also regularly modified the 10,000 gallon tenders that came with the engines.

## THROUGH THE YEARS: B&O CLASS P-5 PACIFIC #5222

P-5 5222 was one of 10 USRA Light Pacifics built for B&O by Alco's Brooks Works in September 1919, construction number 61278. The engine was retired in October 1956, less than two years before the final B&O steam runs in 1958.

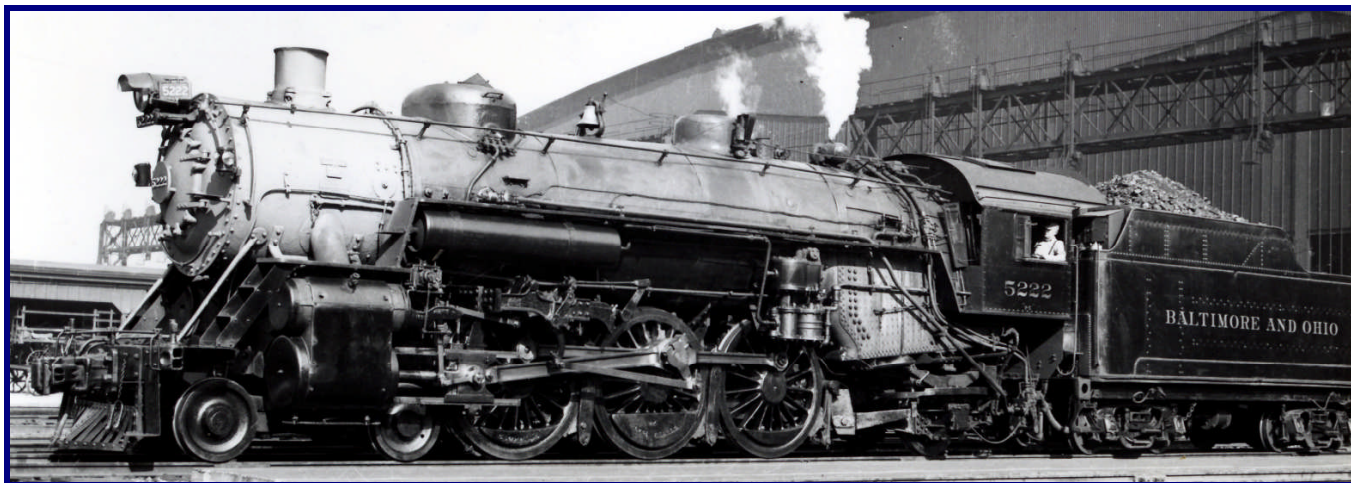


B&O Class P-5 #5222, September 1919 (C.C. Grayson photo, Barnard-Wofford Collection, courtesy B&ORRHS).

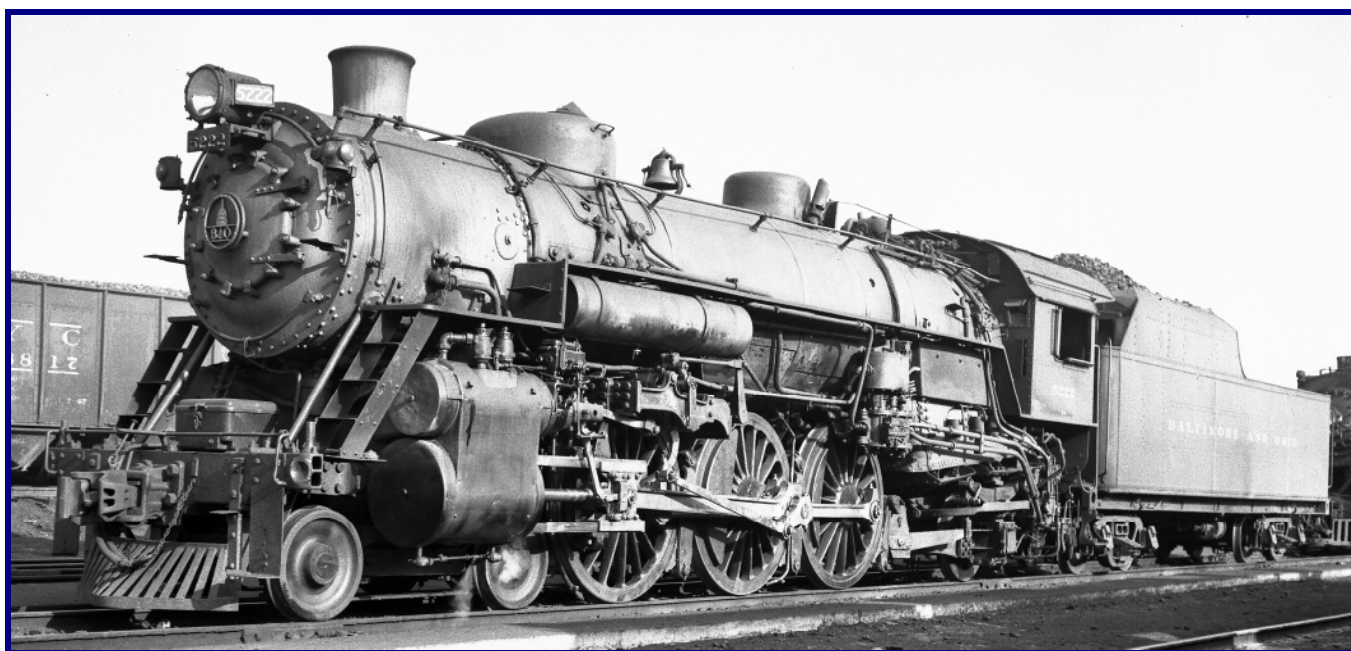


B&O Class P-5 #5222, Grove City OH, c. 1936. Note the *National Limited* drumhead on the smokebox door (H. L. Buckley photo, B&ORRHS collection).

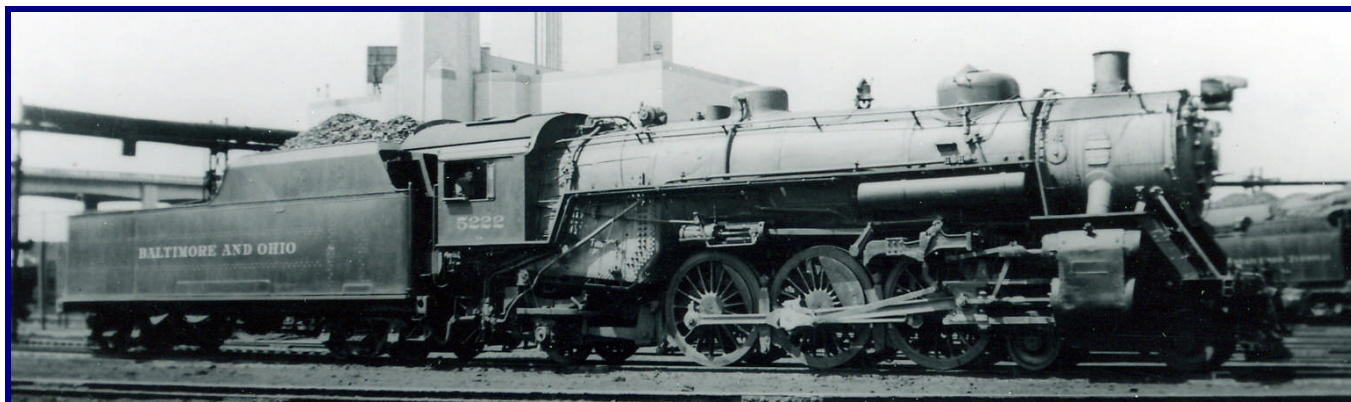




B&O #5222, Class P-5, St Louis MO, September 24, 1938 (A. Johnson photo, Barnard-Wofford Collection, courtesy B&ORRHS). A photo from the Phil Soyring collection (taken at the same location but on a different day judging from slight differences in the location of background details) can be found at <http://www.northeast.railfan.net/images/bo5222s.jpg>. A smaller version of the same photo is on page 256 of Sagle's book.



B&O #5222, Class P-5, Cincinnati Union Terminal, June 20, 1949 (Ralph H. Payne photo, Charles E. Winters collection, courtesy B&ORRHS).



B&O #5222, Class P-5, Cincinnati OH, October, 1956 (Max Miller photo, B&ORRHS collection).



B&O #5222, Class P-5, Louisville KY, July 2, 1955 (J. D. Hahn photo, William Raia collection).

### The Model

Over the last 10 years, Athearn, Bowser, and International Hobby Corporation have all produced or imported USRA Light Pacific models in HO. Bowser's model has Walschaerts valve gear, making it more appropriate for the P-5a engines, while the Athearn and IHC offerings have Baker gear. Another run of Athearn USRA Light Pacific models is in the pipeline. You could make the modifications I describe below to any of the available plastic or die-cast models.

International Hobby Corporation's HO scale USRA Light Pacific has been imported in many versions by at least three predecessor companies (AHM, Life-Like and Model Power). The most recent version has RP-25 flanges, a DCC socket, and blackened running gear, along with a can motor and small flywheel. The IHC Pacifics lack the lugging power of a Bowser engine, but are strong enough for a branchline or short mainline consist of 4-5 cars. None of the models above represent the engines as they appeared in the 1940s and 1950s, and I wanted to capture some B&O-unique characteristics, such as the running boards.

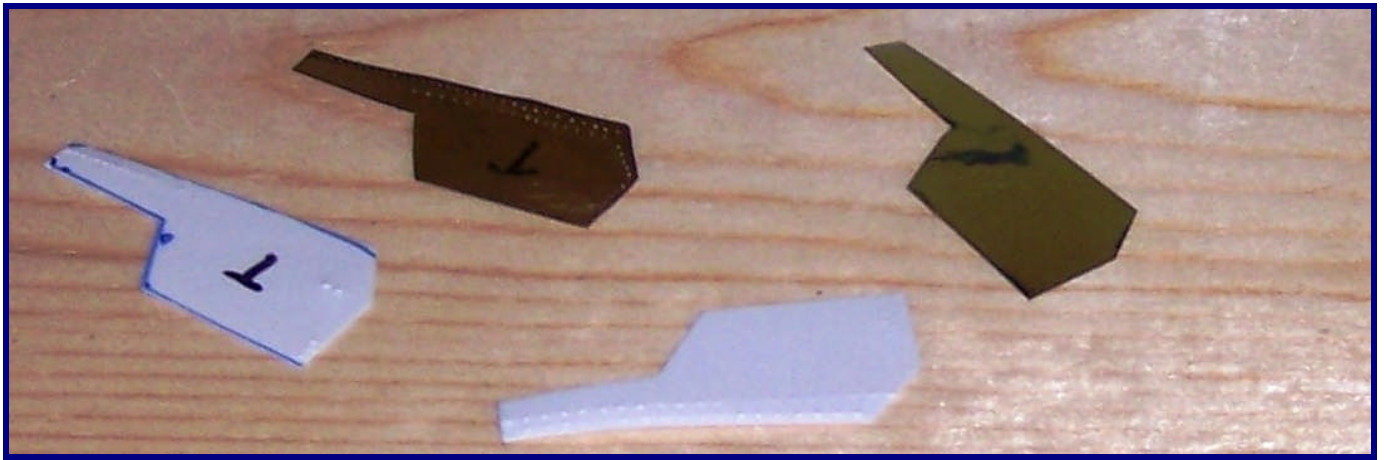
I came across the basis for this project while on a business trip in Central Texas. The version of the IHC USRA Light Pacific that I picked up had a flywheel and separate handrails on the boiler, but it

did not have the DCC socket or a way to tie the tender electrical pickup to the engine. None of the IHC versions have a working front coupler, but that is a relatively easy addition. I decided the model needed a home on a B&O-friendly layout and that it could form the basis for a layout-quality P-5 Pacific.

I wanted to capture the feel of a P-5 as they appeared in the late 1940s, and I wanted an engine that was among the last retired. Based on a review of Edson's book, I picked P-5 5222, which was one of 10 USRA Light Pacifics built for B&O by Alco's Brooks Works in September, 1919, construction number 61278. The engine was retired in October 1956, less than two years before the final B&O steam runs in 1958.

I cut off most of the cast-on details, such as the generator and pop valve, and I used a chisel blade to shave off items such as the injectors and sanding lines. I followed up with Squadron sanding sticks to smooth the rough surfaces, and I also sanded away the mold parting line on top of the boiler. My biggest changes thus far have been to the rear running boards. On most B&O engines, the rear running board dips at an angle just prior to the cab, and the very end of the running board is at the same level as the cab floor. This is a pretty distinctive B&O characteristic, and I could not think of a way to replicate it without making new firebox sides.

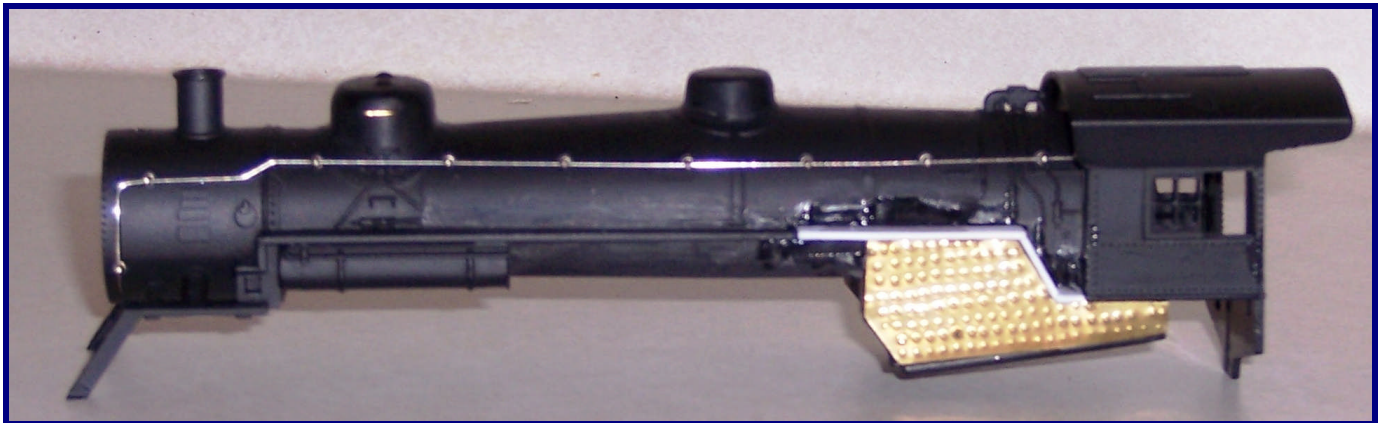




I made the rivet overlays by trial and error once the new rear running boards were in place. I started with .010 in. styrene and I used a fairly large pin to try and impress the rivets over a scrap 1 in. x 4 in. lumber piece. I could not get a consistent impression, and I constantly wandered away from a straight line. I next tried .005 in. brass, and I taped it in place on the lumber. This began to work a bit better. I left half of the overlay clear so I could make rivet impressions,

and once I had finished that half, I lifted the tape to reveal the portion needing impressions, and taped down the riveted side.

I went through six overlays to get two that I could live with. My impressions don't follow plans; I elected to make the impressions every six scale inches, and to separate the rows of rivets by six scale inches.



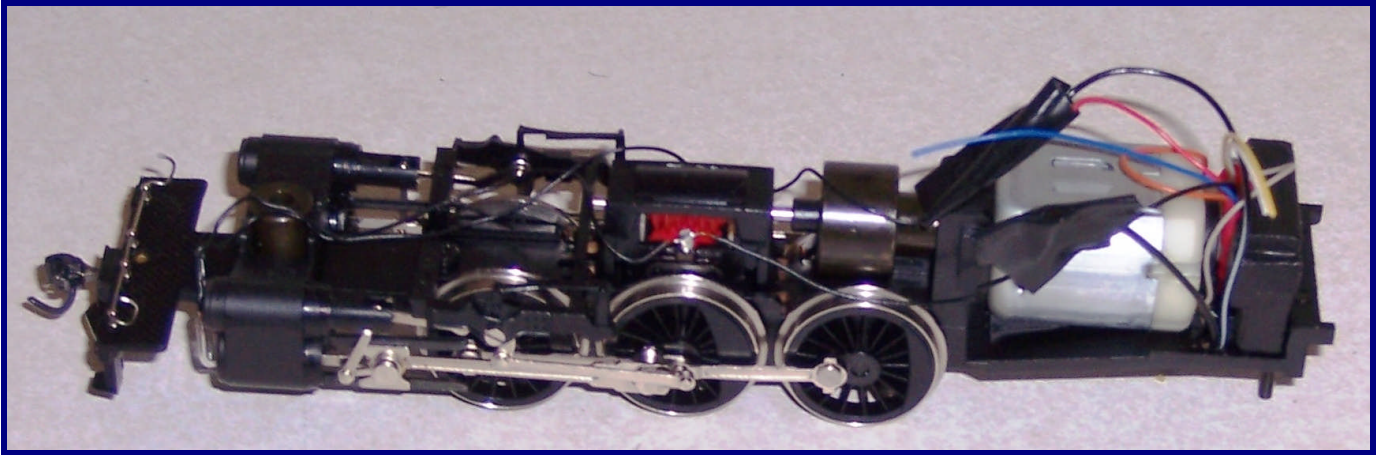
My end products are not perfect, but I think the firebox sides I made will be okay for a layout-quality model once I've added injector and other necessary piping.

[**Update:** Instead of the brass overlays, I would now recommend using styrene and the Archer Transfers (<http://www.archertransfers.com>) rivet decals. I suggest Archer's stock number AR88025, and I'll be trying that approach when I bring the model out of storage for additional work. *(Hopefully, Doug or another modeler will give us a look at this modification when completed - Editor.)*]

To modify the running boards, I began by sanding the firebox sides smooth. I cut the running existing running boards off to a length of scale 10 ft 6 in in front of the cab on each side. I'm not aware of scale plans for the P-5 class as modified by B&O, so my cutting dimensions are educated guesses. I used .030 in styrene to fabricate new running boards. I began by cutting pieces one scale foot long and about 15 scale inches wide and gluing them to the bottom front of the cab. Make everything a bit wider than necessary and you can sand down to width after everything dries. Next, I made running board pieces scale 8 ft 6 in long and about 15 scale inches wide and glue them to the existing running boards. Finally, to close the gap between boiler and cab running

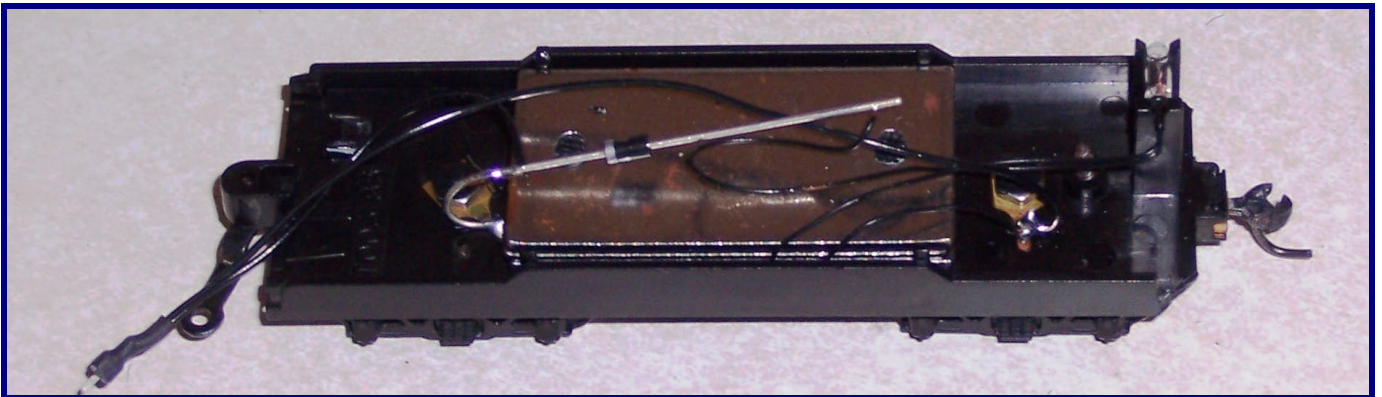
boards, I cut pieces about 3 scale feet long and about 15 scale inches wide. As I previously mentioned, I had cut my running boards to a larger width, so I sanded them down to match the contour of the cab sides and the existing running boards.

Installing a working front coupler on this engine is pretty straightforward. I cut away the dummy coupler and draft gear moldings and enlarged the opening in the pilot to make room for a Kadee #158 in its own box.



I am most comfortable with Digitrax decoders, and I was able to install a DZ125 in the same location. I went further and connected the tender to the engine electrically. I used a Miniaturics 2-pin connector

for that. With pickup from 5 wheels on each side, the engine does well over dirty track and longer-frog turnouts.



### Conclusions

I've added some of the boiler details, but I still have a long way to go on this project. I plan on refining the

riveting techniques and using them on a B&O USRA light Mikado in the future.



## Acknowledgements

Clint Chamberlin, George Elwood, Nick Fry, William Raia.

## References

Edson, William, *Steam Locomotives of the Baltimore & Ohio: An All-Time Roster*, Self-published, 1992.

Fallen Flags Railroad Photos, <http://www.rr-fallenflags.org>

Railroading in the Northeast, <http://www.northeast.railfan.net>

Sagle, Larry (Stauffer, Alvin, Editor), *B&O Power*, Alvin F. Stauffer Publishing, 1964.

Train Control Systems, <http://www.tcsdcc.com/>

## Bill of Materials

Manufacturer	Part Number	Description
International Hobby Corporation <a href="http://www.ihc-hobby.com">http://www.ihc-hobby.com</a>	98Pac	4-6-2 Pacific or similar
Kadee <a href="http://www.kadee.com">http://www.kadee.com</a>	#158	Metal "Scale" Head Whisker® Couplers
K&S <a href="http://www.ksmetals.com">http://www.ksmetals.com</a>		Brass Sheet, .005
Evergreen Scale Models <a href="http://www.evergreenscalemodels.com">http://www.evergreenscalemodels.com</a>	269-9010	Styrene Sheet, .010"
Miniatronics <a href="http://www.miniatronics.com">http://www.miniatronics.com</a>	50-001-02	2-pin connector set
Digitrax <a href="http://www.digitrax.com">http://www.digitrax.com</a>	DZ125	Tiny Wired Decoder. 1.0 Amp for track voltage up to 20 volts, 2 functions. Dimensions, .418" x .340" x .112" / 10.6mm x 8.7mm x 2.86mm
Train Control Systems <a href="http://www.tcsdcc.com/">http://www.tcsdcc.com/</a>	MC2	HO scale decoder a 7 pin JST socket. Dimensions .729" x .417" x .189" or 18.5 mm x 10.6 x 4.8 mm.
Squadron <a href="http://www.squadron.com">http://www.squadron.com</a>	30501 30502 30503	Sanding Stick - Coarse Sanding Stick - Medium Sanding Stick - Fine

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# KITBASH AN N-SCALE B&O CLASS N-43 COVERED HOPPER

By: JIM FORD

PHOTOS BY AUTHOR UNLESS OTHERWISE SPECIFIED.



## Introduction

Between 1955 and 1957, the B&O received three orders of 2003-cubic foot covered hoppers from Pullman-Standard. At 580 units, the N-43 class was not large. Still, the cars could be expected to show up almost anywhere on the system until well into the 1970's. They were initially dedicated to cement service, but were later used for silica sand and other dry bulk lading. I wanted a couple of these cars for

outbound salt loads on my N-scale Rochester Subdivision.

The September/October 2006 issue of *The B&O Modeler* is a must-read on this class. Duane Carrell and Ben Hom provide extensive information on the history of the N-43s, variations within the class, and modeling and lettering, with lots of prototype photos.



## The Model

When Kadee developed an N-43 for the B&ORHS, some of us in N scale had a wave of HO envy. This is a common condition often accompanied by the statement "Yeah, but ours (referring to trains) are longer." In N scale, we have been limited to the

Atlas model of the PS-2, which is not of foreground quality. The body is within prototype dimensions and reasonably well molded, but the roof - which is what we see the most of - is a problem. The hatch covers are crude and oversized, as is the roof walk.



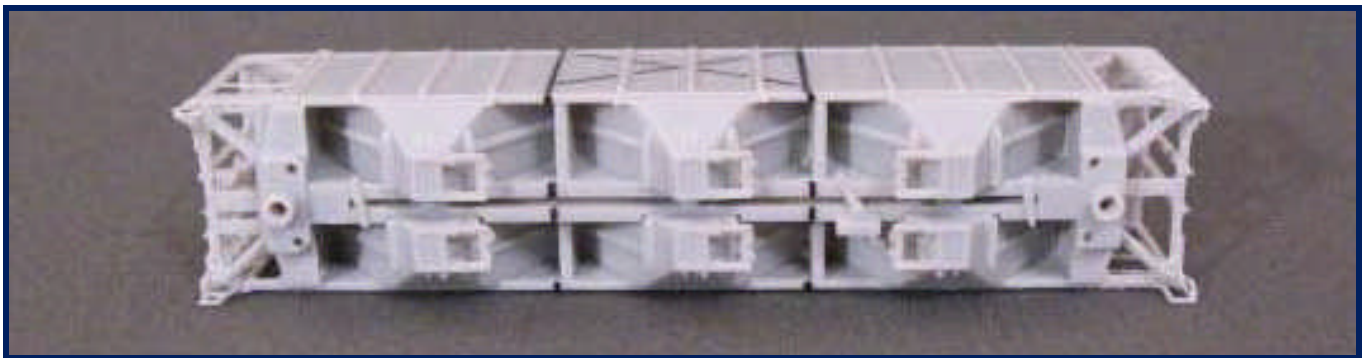
Some of us on the B&O Yahoo group began to wonder how we could improve the Atlas car. Athearn had introduced a 3-bay PS-2893 with nicely-molded hatch covers, and somebody suggested that we might use the covers on the Atlas body. But unless we could buy them as spare parts, it meant sacrificing a car just for four hatch covers. When Athearn said they didn't know when they might list them as parts, I was reluctant to go ahead. The two cars sat together in a box for months (maybe if I left them alone together in the dark . . . ?) while other projects moved forward.

And then one day, wanting to avoid ballasting track, I took them out. Looking at the Athearn car, wondering what to do with the body after I took off the hatch covers, it struck me. Why not just shorten the car by 12 scale feet? The spacing of the ribs and hoppers was such that two saw cuts and one glue joint in the underframe and body would yield a nearly spot-on two-bay PS-2. The roof would be more complex because the spacing between the hatch covers was wrong. But still, four cuts and three joints would do it. It turned out to be nearly that simple.

If you want to try this project, the clearance diagrams of the N-43 in Ben Hom's prototype article will be helpful for checking dimensions as you go along.

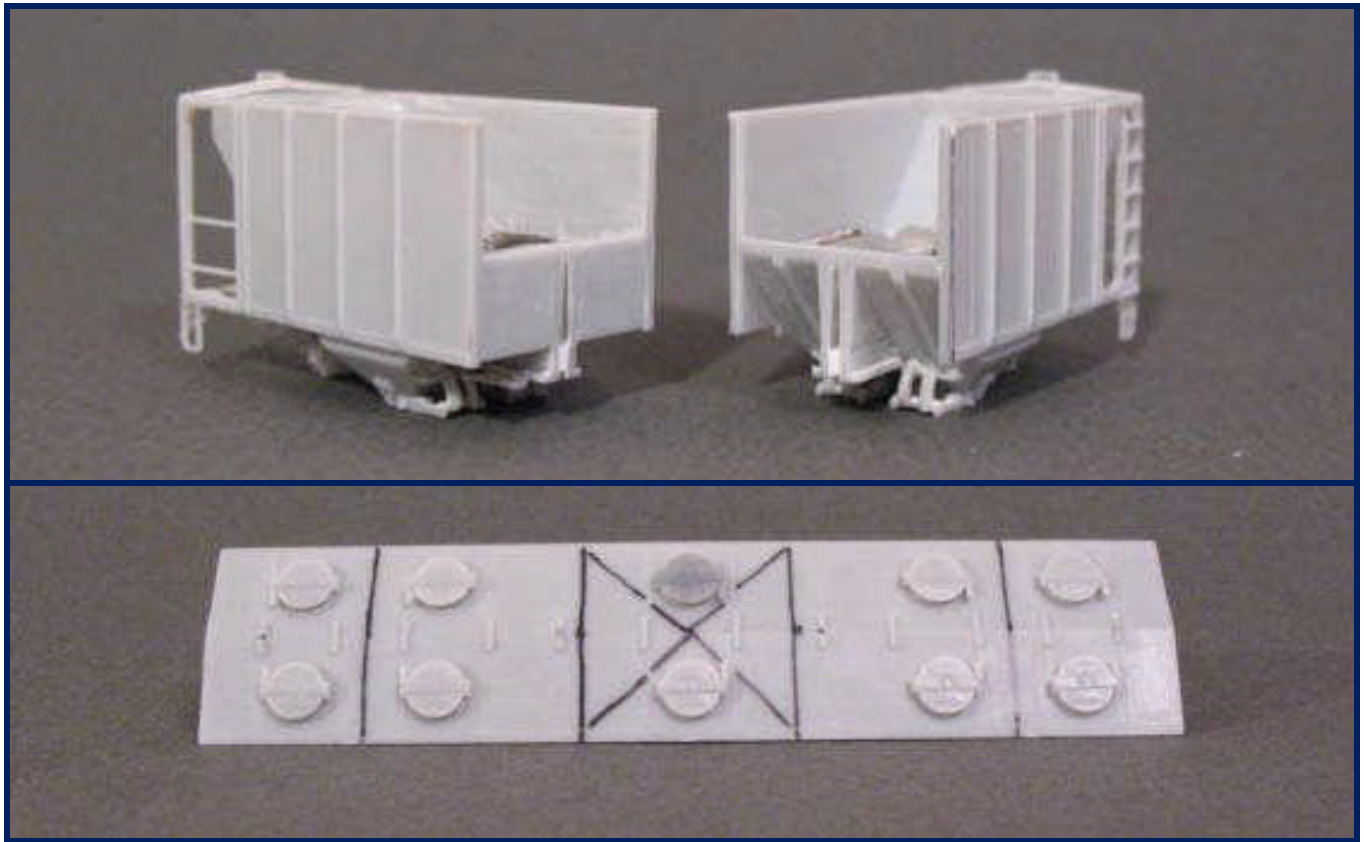
Start with one of the all-grey Athearn cars (mine was NYC). The grey paint is far easier to strip than the black used on some of the cars. Disassemble the car completely. The trucks are held on with screws. (Why doesn't everybody do this?) The roof is held on with a combination of glue and paint. Find a crack to start with and pry around the edge (very gently, and wearing safety glasses) with an X-acto #17 chisel blade to work it loose. The roof walk will also pop off, but it's easier to do after you've stripped some of the paint.

The grey paint comes off easily with 91% isopropyl alcohol and an old toothbrush. You can nudge the paint out from inside the end framing with a toothpick or a small stiff artist's brush, but be careful. The end railings are really delicate. (Don't ask how I know.) When you rinse the alcohol off, try not to get too much water inside the car. The weights will rust. Scrape the odd rivets off the sides, leaving the weld seams. Scrape the weld seams off the roof. They'll all be out of place by the time you're finished.



The locations for the cuts in the body are shown in the photo above. Note that the 12 foot section is slightly offset toward one end. There is a heavy cross member between each pair of hoppers. You want to keep one of them and sacrifice the other. Square up the cut ends with a wide file. The photo below shows the two pieces ready to be glued. I backed up the seam on one side with a square of .020" styrene to make sure the sides were flush, and then glued the other side and the bottom. Finish the seams with white putty.

When you cut the body you also cut the brake pipe. Trim off the stubs back to the hanging brackets and glue in a length of Plastruct .010 styrene rod. The cuts to the roof are shown in next photo. The center section (waste) is about 10 scale feet long, centered on the middle hatch. Square up the cut on one of the shorter end pieces and glue it into the body. Glue two little rectangles of .020" styrene on the underside to back up the joint.



Now, take the interior piece that was next to that end and flip it around 180 degrees so the hatch cover is toward the center of the car. Square up the outward end and trim it so the hatch covers will be 5 feet 8 inches on centers. Then trim the inward end so it goes a smidge past the center line of the body.

Remember the old carpenter's adage, measure twice and cut once. Glue it in place. Repeat the process, starting with the other end piece and then the other interior piece. Finish the seams with white putty. Cut 12 feet out of the roofwalk and glue it in place. That's it.





I prefer to body-mount Micro-Trains couplers, but I couldn't get a dependable joint between their slippery plastic and the delicate end framing of the car. The Athearn truck-coupler set looks pretty good, although the coupler pocket extends a little too far past the end

sill. Micro-Trains low-profile wheelsets will fit the Athearn truck. There's probably also a Fox Valley metal wheelset that fits. Apply your preferred grey paint. PollyScale D&H Grey looks right under my lighting.



I won't repeat Duane Carrell's thorough discussion on lettering the N-43. As I was getting ready to letter, I found a slide I had shot years ago of N-43 #631387. Microscale's sheet 60-486 contained the correct billboard B&O, the capitol dome emblem, reporting marks, road number digits, and the N-43 class identifier. And lo and behold, it included the correct dimensional data, with a built date of 2-57. As Duane noted, the weight data in the Microscale set is, inexplicably, in a Gothic font. Microscale sheet 60-1 has lots of data sets in a Roman font. The font isn't quite right for the B&O, but at 1:160 it's hard to tell. It's also hard to tell that the weights on my car are wrong. Rather than piece them together number by number, I chose a set with the correct capacity (140,000 lbs) and took what I was given for the load

limit and light weight. The data sheet also yielded the pieces for a 2-65 reweigh at Brooks Avenue Yard in Rochester, which fits my road perfectly.

Was it worth the trouble? I'm an inveterate kitbasher, so proving it could be done was satisfying. In fact, I enjoyed it so much that I did a second car. If you need lots of covered hoppers, relettering the Atlas car is probably the way to go. But set out on a siding near the front of the layout, the kitbashed car looks pretty nice. And remember the 12-foot section you cut out? Use the hat-shaped ribs to replace the channel ribs on another Athearn car and you'll have an N-46. Until I get around to building mine, you'll have the only one.



## Acknowledgements

Nick Fry.

## Bill of Materials

Manufacturer	Part Number	Description
Athearn <a href="http://www.athearn.com">http://www.athearn.com</a>	23810	PS-2 2893 cu ft Covered Hopper
Evergreen Scale Models <a href="http://www.evergreenscalemodels.com">http://www.evergreenscalemodels.com</a>	9020	.020" White Styrene Sheet
Microscale <a href="http://www.microscale.com">http://www.microscale.com</a>	60-1	Freight Car Data, Roman Lettering, Black and White
	60-486	Chessie System Hopper - Covered - 2-Bay - 70-ton - N-42 & N-43 Classes [While this set letters several B&O variations, it is listed on the Microscale website as a Chessie System set – Editor.]
Plastruct <a href="http://www.plastruct.com">http://www.plastruct.com</a>	MR-10	.010" Round Styrene Rod

## References

Carrell, Duane, "Decaling N-43 Covered Hoppers", *The B&O Modeler*, September/October 2006, p 6.

Hom, Ben, "Prototype Information for N-43 Covered Hoppers", *The B&O Modeler*, September/October 2006, p 12.



## MORE CLASS N-43 2003 CU FT PS-2 COVERED HOPPER PHOTOS FROM THE ARCHIVES



B&O #631149, Class N-43, Willard OH, December 27, 1964 (J. W. Barnard photo, Barnard-Wofford Collection, courtesy B&ORRHS). The empty car routing instruction reads "WHEN EMPTY RETURN TO B&ORR WATSON IND".



B&O #631493, Class N-43 in sand service, c. 1975 (John Hankey photo, B&ORRHS collection). The empty car routing instruction reads "WHEN EMPTY RETURN TO B&ORR HANCOCK WVA".



B&O #631626, Class N-43, June 1985 (Gary Schlerf photo, B&ORRHS collection).

Not all Class N-43 covered hoppers received complete repaints over the years, and these photos are provided to give modelers additional prototype references for weathering the Company Store's special run of HO scale Kadее PS-2s or models following Jim Ford's or Duane Carrell's articles. See the September/October 2006 issue of *The B&O Modeler* for more prototype information and photos.

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